

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended): A miniaturized, ~~easily replaceable~~, plug compatible thermal management package ~~sealed in at least one insulating envelope~~ comprising:

- a) at least one air inlet;
- b) at least one fuel inlet;
- c) a plurality of electrode connectors to receive and supply electric power;
- d) an exhaust outlet, wherein the miniaturized thermal management package is sealed in a first insulating envelope, and the air inlet, fuel inlet, electrode connectors, and exhaust outlet are all located within a plug connector configured for plugging into a mating socket;
and optionally
 - e) a counter-flow heat exchanger; and
 - f) an ignitable catalytic combustor; ~~combined with a second plurality of connectors which are plugged into a mating socket to supply and accept both electrical power and gas flow.~~

Claim 2 (Original): The thermal management package of claim 1 wherein the plug-compatible thermal management system is a solid oxide fuel cell and wherein recovery of thermal energy is by means of a counterflow heat exchanger, efficient thermal insulation, combustion of residue fuel, cell design with a minimal conductive heat loss to the surroundings.

Claim 3 (Currently amended): The thermal management package of claim 2 wherein heat loss is minimized by at least one thermal insulation barrier selected from the group consisting of a vacuum multi-foil insulation envelope, an evacuated ~~fibrous~~ aerogel insulation and gas-filled fibrous ceramic insulation enveloped in hermetic packaging.

Claim 4 (Original): The thermal management package of claim 2 wherein the amount of power generated by the small-scale solid oxide fuel cell ranges from about 10 milliwatts to about 10 watts.

Claim 5 (Original): The thermal management package of claim 2 wherein the fuel entering the fuel inlet is selected from the group consisting of hydrogen, ammonia, methanol, ethanol, a reformat mixture and one or more low molecular weight hydrocarbons.

Claim 6 (Currently Amended): The thermal management package of claim 1 wherein the at least one insulated envelope is constructed from a material selected from the group consisting of quartz, glass and metals with compatible thermal expansion properties ~~including ferritic steel and nickel-based super-alloys.~~

Claim 7 (Original): The thermal management package of claim 1 wherein the package is a high temperature combustion system that generates heat by burning in a catalytic combustor which is ignited by a heater coil for combustion igniter, resulting in the production of heat.

Claim 8 (Original): The thermal management package of claim 1 wherein the package is a moderate to high temperature chemical reactor which generates at least one product of a chemical reaction.

Claim 9 (Currently Amended): ~~An easily replaceable, inexpensive~~ A solid oxide fuel cell energy module comprising at least one envelope constructed from a material that is hermetic and selected from the group consisting of quartz, glass, and metals with compatible thermal expansion properties ~~including ferritic steel and nickel-based super-alloys.~~

Claim 10 (Currently Amended): The energy module of claim 9 which further comprises at least one air inlet, at least one fuel inlet, a plurality of connectors to receive and supply electric power, an ignitable catalytic combustor, a means to ignite the combustor, a counter-flow heat exchanger, an exhaust outlet and a plurality of connectors which are plugged into a mating socket to supply and accept power and gas flow.

Claim 11 (Currently Amended): The energy module of claim 9 wherein at least one solid oxide fuel cell is enclosed in ~~a gas-tight~~ the envelope with a connector plug for facile replacement when spent.

Claim 12 (Currently Amended) The energy module of claim 9 wherein the ~~gas-tight~~ envelope ~~further encloses~~ is a gas-tight envelope enclosing an insulating member to reduce heat loss from the SOFC.

Claim 13 (Currently Amended): The energy module of claim 12 wherein the insulating member is a high-performance, high-temperature insulation that is selected from the group consisting of ~~Aerogel~~ aerogel, vacuum multifoil insulation, and low density fibrous ceramic insulation.

Claim 14 (Original): The energy module of claim 9 which is miniaturized and ranges in size from about 0.1 to about 10 inches.

Claim 15 (Currently Amended): The energy module of claim [9] 10 wherein the connector plugs are arranged so that fuel, air, and exhaust are vented ~~[[in to]]~~ into and out of the module at near-ambient temperature.

Claims 16-20 (Canceled).

Claim 21 (New): The thermal management package of claim 1, wherein the insulating envelope comprises quartz.

Claim 22 (New): The thermal management package of claim 1, further comprising a second insulating envelope located within the first insulating envelope.

Claim 23 (New): The thermal management package of claim 21, further comprising a second insulating envelope located within the first insulating envelope.

Claim 24 (New): The thermal management package of claim 23, further comprising an insulating element selected from the group consisting of vacuum multi-foil insulation, an evacuated aerogel insulation, and gas-filled fibrous ceramic insulation, wherein the insulating element is located between the first insulating envelope and the second insulating envelope.

Claim 25 (New): The energy module of claim 9, wherein the envelope comprises quartz.

Claim 26 (New): The energy module of claim 25, further comprising an insulating element located within the envelope.

Claim 27 (New): The energy module claim 26, wherein the insulating element is selected from the group consisting of vacuum multi-foil insulation, an evacuated aerogel insulation, and gas-filled fibrous ceramic insulation.

Claim 28 (New): A solid oxide fuel cell energy module comprising:
at least one solid oxide fuel cell;
a first envelope surrounding the solid oxide fuel cell, wherein the first envelope comprises quartz or glass;
a second, hermetically sealed, envelope surrounding the first envelope, wherein the second envelope comprises quartz or glass; and
an insulating space disposed between the first envelope and the second envelope.

Claim 29 (New): The module of claim 28, wherein a vacuum is present in the insulating space.

Claim 30 (New): The module of claim 28, wherein an insulating element is present in the insulating space, and the insulating element comprises vacuum multi-foil insulation, evacuated aerogel insulation, or gas-filled fibrous ceramic insulation.